

## COMMERCIAL/INDUSTRIAL USE WARRANTY

Black & Decker warrants this product for one year from date of purchase. We will repair without charge, any defects due to faulty material or workmanship. Please return the complete unit, transportation prepaid, to any Black & Decker Service Center or Authorized Service Station listed under "Tools Electric" in the yellow pages. This warranty does not apply to accessories or damage caused where repairs have been made or attempted by others.

**BLACK & DECKER**

# INSTRUCTION MANUAL

## IMPORTANT SAFETY INSTRUCTIONS (FOR ALL TOOLS)

**WARNING: When using Electric tools, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and personal injury, including the following:**

### READ ALL INSTRUCTIONS

1. **Keep work area clean.** Cluttered areas and benches invite injuries.
2. **Consider work area environment.** Don't expose power tools to rain. Don't use power tools in damp or wet locations. Keep work area well lit.
3. **Guard against electric shock.** Prevent body contact with grounded surfaces. For example: pipes, radiators, ranges, refrigerator enclosures.
4. **Keep children away.** All visitors should be kept away from work area. Do not let visitors contact tool or extension cord.
5. **Store idle tools.** When not in use, tools should be stored in dry, and high or locked-up place—out of reach of children.
6. **Don't force tool.** It will do the job better and safer at the rate for which it was intended.
7. **Use right tool.** Don't force small tool or attachment to do the job of a heavy-duty tool. Don't use tool for purpose not intended, for example, don't use circular saw for cutting tree limbs or logs.
8. **Dress properly.** Do not wear loose clothing or jewelry. They can be caught in moving parts. Rubber gloves and non-skid footwear are recommended when working outdoors. Wear protective hair covering to contain long hair.
9. **Use safety glasses.** Also use face or dustmask if cutting operation is dusty.
10. **Don't abuse cord.** Never carry tool by cord or yank it to disconnect from receptacle. Keep cord from heat, oil, and sharp edges.
11. **Secure work.** Use clamps or a vise to hold work. It's safer than using your hand and it frees both hands to operate tool.
12. **Don't overreach.** Keep proper footing and balance at all times.
13. **Maintain tools with care.** Keep tools sharp and clean for better and safe performance. Follow instructions for lubricating and changing accessories. Inspect tool cords periodically and if damaged have repaired by authorized service facility. Inspect extension cords periodically and replace if damaged. Keep handles dry, clean and free from oil and grease.
14. **Disconnect tools.** When not in use, before servicing, and when changing accessories, such as blades, bits, cutters, moved from tool before turning it on.
15. **Remove adjusting keys and wrenches.** Form habit of checking to see that keys and adjusting wrenches are removed from tool before plugging in.
16. **Avoid unintentional starting.** Don't carry plugged-in tool with finger on switch. Be sure switch is off when plugging in and so marked.
17. **Outdoor use extension cords.** When tool is used outdoors, use only extension cords intended for use outdoors.
18. **Stay alert.** Watch what you are doing. Use common sense. Do not operate tool when you are tired.
19. **Check damaged parts.** Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced by an authorized service center, unless otherwise indicated elsewhere in this instruction manual. Have defective switches replaced by an authorized service center. Do not use tool if switch doesn't turn it on and off.
20. **Do not operate portable electric tools near flammable liquids or in gaseous or explosive atmospheres.** Motors in these normally spark, and sparks might ignite fumes.

### IMPORTANT

To assure product SAFETY and RELIABILITY, repairs, maintenance and adjustment, (including brush inspection and replacement) should be performed by Black & Decker Service Centers or other qualified service organizations, always using Black & Decker replacement parts.

# ELECTRIC DRILLS

**BLACK & DECKER (U.S.) INC.**  
U.S. Power Tools Group

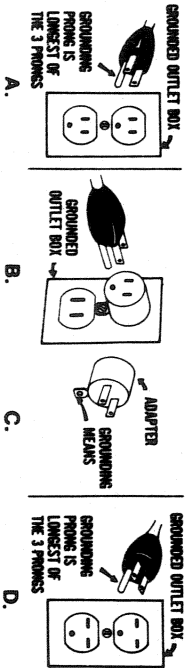
10 North Park Drive, P.O. 21030-0798, Hunt Valley, MD 21030

## SPECIAL SAFETY INSTRUCTIONS (FOR DRILLS)

**CAUTION:** Do not tape the chuck key to the cord set. The chuck key handle may, over a period of time, cut through the cord set insulation thereby creating an electrical hazard. Use a plastic or rubber chuck key holder to hang the key from the cord.

### GROUNDING INSTRUCTIONS

This tool should be grounded while in use to protect the operator from electric shock. The tool is equipped with an approved three-conductor cord and three-prong grounding type plug to fit the proper grounding type receptacle. The green (or green and yellow) conductor in the cord is the grounding wire. Never connect the green (or green and yellow) wire to a live terminal. If your unit is for use on less than 150 volts, it has a plug like that shown in Figure A. If it is for use on 150 to 250 volts, it has a plug like that shown in Figure D. An adapter, Figures B and C, is available for connecting Figure A plugs to two-prong receptacles. The green-colored rigid ear, lug, etc., must be connected to a permanent ground such as a properly grounded outlet box. No adapter is available for a plug as shown in Figure D. Adapter shown in Figures B and C in Not for Use in Canada.



We recommend that you NEVER disassemble the tool or try to do any re-wiring in the electrical system. Any such repairs should be performed only by B&D Service Centers or other qualified service organizations. Should you be determined to make a repair yourself, remember that the green colored wire is the "grounding" wire. Never connect this green wire to a "live" terminal. If you replace the plug on the power cord, be sure to connect the green wire only to the grounding (longest) prong on a 3-prong plug.

### SAVE THESE INSTRUCTIONS

#### SWITCHES

##### TRIGGER SWITCH & LOCKING PIN

To start drill, depress trigger, to stop drill, release trigger. To lock trigger in "ON" position for continuous operation, depress trigger and push in locking pin (located next to trigger). To release locking mechanism, depress and release trigger.

##### PADDLE SWITCH (1/4" Shorty® Drill)

This switch operates by tightening and loosening your grip on the tool housing. **CAUTION:** Unplug the tool when changing bits or accessories to avoid turning the Drill "ON" accidentally.

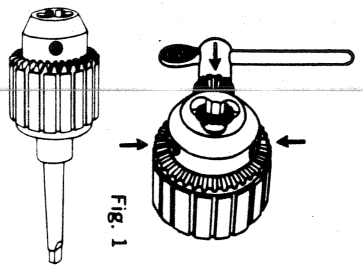


Fig. 2

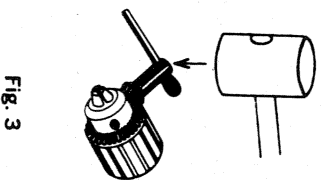


Fig. 3

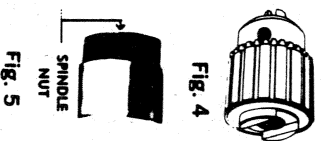


Fig. 4

### MORSE TAPER SOCKETS

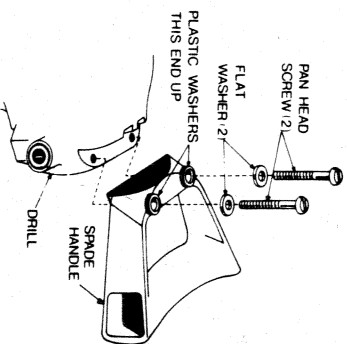
Drill equipped with Morse Taper Sockets (Fig. 5) have a Morse Taper spindle sleeve inside the socket. Use drill bits with Morse Taper shanks corresponding to the Morse Taper sleeve. Be sure that the tang of the drill bit fits into the sleeve correctly. Tap the point of the drill bit **lightly** with a lead or rawhide hammer to seat the bit — do not use heavy blows.

#### Removal of Drill Bit:

Remove the spindle nut (See Fig. 5) completely by unscrewing it, and remove the spindle sleeve. Note that the tang of the drill bit protrudes through the rear of the sleeve. Tap the protruding tang lightly to remove the bit.

### SPADE HANDLE ASSEMBLY

Assemble Spade Handle as shown at right. Tighten both screws to a snug fit, then tighten both screws an additional 1/2 turn.



## VARIABLE SPEED & REVERSING SWITCHES (Certain Tools)

The Variable Speed Trigger Switch permits "FREE HAND" speed control—the farther the trigger is depressed, the higher the R.P.M. of the tool. A Switch Locking Button permits locking the trigger in the full "ON" position for continuous operation, or when using the Drill in a Vertical Stand. To lock the trigger "ON", depress trigger fully and push in locking button, then gently release trigger. To release locking mechanism, depress trigger fully, then release it.

For removing screws or easing drill bits out of tight holes, move the Reversing Switch to reverse the drill motor. The trigger switch must be released to the "OFF" position before moving the reversing switch. After any reversing operations, return switch to the forward position.

## CHUCKS AND SOCKETS

**CAUTION:** Before touching chucks or sockets, or making any adjustments, always disconnect tool from power supply.

### GEARED CHUCKS

- 1) Always completely insert the shank of the drill bit or accessory in the chuck. This permits full gripping power and prevents cocking the chuck jaws. When using drill bits or accessories with 3 "Flats" on the shank, the chuck jaws should be located on the centers of these flats.
- 2) Use all three holes in the chuck body to tighten the jaws (Fig. 1). Insert the chuck key into each hole and tighten as much as possible. To release the drill bit, use the chuck key in only one hole.
- 3) Use only a chuck key to tighten or loosen the chuck jaws. If key is lost order a new key at once. Order keys by number stamped on the chuck.
- 4) Geared chucks on Morse Taper Arbors (Fig. 2) are sometimes used on  $\frac{1}{2}$ " or larger drills. Care must be taken when withdrawing from a drilled hole so that the arbor does not suddenly slip out of the socket in the drill and throw the operator off balance. The use of a Reversing Switch on a drill will prevent this by easing the drill bit from the hole.

### Removal and Attachment of Geared Chucks:

- 1) For geared chucks which are threaded directly on or into the drill (type of chuck usually used on  $\frac{1}{4}$ " and some  $\frac{1}{2}$ " drills), use the following method: Place the chuck key in the chuck. Using a hammer or other similar object, strike the key sharply in the same direction that the tool normally runs. (See Fig. 3). This will loosen the chuck so that it can be unscrewed by hand.
- 2) Since special tools and techniques are required in the removal and attachment of geared chucks on Morse Taper Arbors (See Fig. 2), and of geared chucks known as "Key Drive Chucks" (See Fig. 4), it is recommended that this work be done by your B & D Service Branch.

## MOTOR

Your tool is powered by a Black & Decker built motor. Be sure your power supply agrees with nameplate marking. **VOLTS 50/60 Hz** means **Alternating Current ONLY**. **VOLTS DC 60 Hz** means it will also operate on **Direct Current**. Voltage decrease of more than 10% will cause loss of power and over-heating. All B&D tools are factory-tested; if this tool does not operate, check the power supply.

## BRUSHES

Carbon Brushes should be regularly inspected for wear if your Drill has exterior Brush Inspection Caps (Holgun Drills also have triangular Brush Inspection plates to facilitate brush inspection). When the cap is unscrewed, the spring and brush assembly may be withdrawn from the tool. Keep brushes clean and sliding freely in their guides. Carbon brushes have varying symbols stamped into them, and if the brush is worn down to the line closest to the spring, they must be replaced. New brush assemblies are available at Service Centers; see **TOOLS, ELECTRIC** in the Yellow Pages.

If your Drill does not have exterior Inspection Caps, brush inspection should only be attempted by trained power tool repairmen like the men at B&D Service Centers. The inspection should be made every two to six months, depending upon usage.

## EXTENSION CORDS

Tools that have 3 wire cords requiring grounding must only be used with extension cords that have 3-prong grounding type plugs and 3-pole receptacles. Only round jacketed extension cords should be used, and we recommend that they be listed by Underwriters Laboratories (U.L.) (C.S.A. in Canada). If the extension will be used outside, the cord must be suitable for outdoor use. Any cord marked as outdoor can also be used for indoor work.

An extension cord must have adequate wire size (AWG or American Wire Gauge) for safety, and to prevent loss of power and overheating. The smaller the gauge number of the wire, the greater the capacity of the cable, that is 16 gauge has more capacity than 18 gauge. When using more than one extension to make up the total length, be sure each individual extension contains at least the minimum wire size.

To determine the minimum wire size required, refer to the chart below:

NAMEPLATE RATING - AMPS	25	50	75	100	125	150	175	200
0 - 10.0	18	18	16	16	14	14	12	12
10.1 - 13.0	16	16	14	14	14	12	12	12
13.1 - 15.0	14	14	12	12	12	12	12	—

Before using an extension cord, inspect it for loose or exposed wires, damaged insulation, and defective fittings. Make any needed repairs or replace the cord if necessary. Black & Decker has extension cords available that are U.L. (C.S.A. in Canada) listed for outdoor use.

## DRILLING INSTRUCTIONS

- 1) Use sharp drill bits only. For WOOD, use twist bits (carbon tool steel or high speed steel), spade bits, power auger bits, or hole saws, depending upon type of wood and size of hole. For METAL, use a lubricant (except for cast iron) and high speed steel twist bits or hole saws, depending on type of metal and size of hole. For MASONRY, such as brick, cement, (concrete block, etc.), use carbide-tipped bits. NOTE: The twist bit most commonly used for general purpose work has its cutting lips ground to a 59° angle. These lips should be kept sharp and of equal length; point of bit must be at exact center of bit. When drilling large holes in most materials, the use of a small pilot hole (approx. ½ the dia. of the larger hole) will prove helpful.
- 2) Be sure the material to be drilled is anchored or clamped firmly. If drilling thin material, use a wood "back-up" block to prevent damage to the material.
- 3) Always apply pressure in a straight line with the bit. Use enough pressure to keep drill biting, but do not push hard enough to stall the motor or deflect the bit.
- 4) Always use pipe or side handles when provided. Be sure to brace yourself against the twisting action of the drill.
- 5) IF DRILL STALLS, it is usually because it is being overloaded or improperly used. RELEASE TRIGGER IMMEDIATELY, remove drill bit from work, and determine cause of stalling. DO NOT CLICK TRIGGER OFF AND ON IN AN ATTEMPT TO START A STALLED DRILL— THIS WILL DAMAGE THE DRILL.
- 6) To minimize stalling on breaking through the material, reduce pressure on drill and ease the bit through the last fractional part of the hole.

**CAUTION:** When drilling into walls, floors or wherever "live" wires may be encountered, do not touch the chuck or any front metal parts of the Drill! Hold the Drill only by the plastic switch handle, the isolated spade handle or the grip covered pipe handle, to prevent electric shock if you drill into a live wire. All handles provided must be used and the insulation maintained in good condition.

## LUBRICATION

B&D tools are properly lubricated at the factory and are ready for use. Tools should be relubricated regularly every sixty days to six months, depending on usage. (Tools used constantly on production or heavy-duty jobs and tools exposed to heat may require more frequent lubrication.) This lubrication should only be attempted by trained power tool repairmen such as B&D Service Center technicians.

Some B&D Drills are equipped with an oil hole located at the rear of the tool. Periodically place a few drops of SAE #10W or 20W motor oil in this hole.

## BEARINGS

B&D tools use both "closed" and "open" type bearings.



CLOSED TYPE BEARING



OPEN TYPE BEARING

### CLOSED TYPE BEARINGS

The closed type bearing is permanently lubricated at the factory to last the life of the bearing. Lubricant is retained in the bearing by two shields (non-contacting metal plates), two seals (contacting felt or synthetic rubber), or a combination of one shield and one seal.

### OPEN TYPE BEARINGS

The open type bearings are open on one or both sides. Grease is applied to these bearings at the factory, and further lubrication is received from the grease in the gear case (if bearings are located in this area). Roller, needle, and sleeve bearings all fall into the open type classification.

## ACCESSORIES

Recommended accessories and attachments for your Drill are shown in this manual. (CAUTION: The use of any other accessory or attachment might be hazardous). For safety in use, the following accessories should be use only in sizes up to the maximums shown in the table below.

The accessories listed in this manual are available at extra cost from your local dealer or Black & Decker Service Center. A complete listing of service centers is included on the owner's registration card packed with your tool. If you need assistance in locating any accessory, please contact: User Services, Black & Decker (U.S.) Inc., U.S. Power Tools Group, 10 North Park Drive, P.O. 21030-0857, Hunt Valley, MD 21030.

ACCESSORY	DRILL SIZE						
	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/4"
Bits, Metal Drilling	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1 1/4"
Bits, Wood Drilling	1/2"	3/4"	1 1/8"	1 1/8"	1 3/16"	1 1/8"	1 1/4"
Bits, Masonry Drilling	1/2"	1/2"	3/4"	1 1/8"	2"	2"	2"
Hole Saws	1 1/2"	1 1/2"	4"	4"	3/4"	3/4"	3/4"
Wire Wheel Brushes	4"	4"	4"	4"	4"	4"	4"
Wire Cup Brush	3"	3"	3"	3"	*	*	*
Buffing Wheels	4"	4"	4"	4"	*	*	*
Rubber Backing Pads	4 5/8"	4 5/8"	4 5/8"	4 5/8"	*	*	*

\* Accessories not used with these large, low-speed Drills.